Printable Roundabouts FAQ

What is a roundabout?

A roundabout is a one–way circular intersection without traffic signal equipment in which traffic flows around a center island.

What is a modern roundabout?

A modern roundabout is a new form of intersection control that provides safe and efficient traffic flow. It operates with yield control at the entry points, and gives priority to vehicles within the roundabout.

Why build a roundabout instead of a Traffic Signal?

Roundabouts move traffic safely and efficiently through an intersection because of:

- Slower speeds
- Fewer conflict points
- Easy decision-making

Studies show that roundabouts provide a:

- 90% reduction in fatal crashes
- 75% reduction in injury crashes
- 30—40% reduction in pedestrian crashes
- 10% reduction in bicycle crashes

Slower vehicle speeds (under 25mph) mean:

- Drivers have more time to judge and react to other vehicles and pedestrians
- Easier to use for older and novice drivers
- Reduction in the severity of accidents
- Pedestrians are safer

Efficient traffic flow:

- Traffic always on the move–less delay
- 30—50% increase in traffic capacity

Other Benefits:

- Reduction in pollution and fuel use
- Less noise due to fewer stops and starts
- No signal equipment to install and repair
- Provides traffic calming
- Improves visual quality and character through aesthetic landscaping

What is the difference between a Traffic Circle and a Modern Roundabout?

Modern Roundabouts are different than traffic circles in the following ways:

- Traffic circles can involve stop signs or stop signals
- Traffic circles can be very large or very small
- Traffic circles can operate at higher speeds and often require motorists to move from one lane to another

Some traffic circles still exist in the USA, however safety and operational problems caused many of them to fall out of favor in the 1950s and 60s.

Modern Roundabouts are not Traffic Circles

- Modern roundabouts follow a yield at entry rule, which requires approaching vehicles to wait for a gap in the circulating traffic before entering the roundabout
- Modern roundabouts involve low speeds for traffic entering and driving through the roundabout
- Modern roundabouts use deflection to slow entering traffic and enhance safety
- Vehicles in the modern roundabout have the right of way

Why Modern Roundabouts?

The Phoenix area and Arizona are consistently worst in the nation for fatalities resulting from red light runners at traditional intersections. The geometry of a modern roundabout is designed so all motorists have to slow down. Modern roundabouts reduce accidents by 40% to 60%, reduce injury accidents by 80% and fatal accidents by as much as 90%!

The distinguishing differences between traffic circles and modern roundabouts are:

- Modern roundabouts have a smaller diameter than most traffic circles, resulting in safer conditions and lower speeds.
- Vehicles can enter modern roundabouts much easier than traffic circles due to flared approaches, entry angles, slower speeds on the circulating roadway and the fact that vehicles entering roundabouts always yield to circulating traffic.
- Properly planned modern roundabouts are designed using rigorous standards based on specific turning volumes. Traffic circles are typically sized based on land availability and or road distance needed for accomplishing high speed weave movements.

Many of us have experience with a large, old style traffic circle (also called rotaries in some locations). The DuPoint Circle in Washington D.C. for example is a traffic circle. Traffic circles are large in diameter, have high circulating speeds and can require some merging and weaving between lanes to exit. Traffic circles exhibit poor operations and high crash rates. Driving through traffic circles can be unnerving to the uninitiated driver, heck in some instances driving through traffic circles can be unnerving to even initiated drivers!

People unfamiliar with the modern roundabout often assume they cause similar problems since they are circular too, plus that term roundabout was tossed around in Great Britain in the 1920s so naturally lots of us are/were confused by that.

Here is a brief history about traffic circles and modern roundabouts:

- In 1966, research in Great Britain led to a yield at entry rule. The yield at entry rule ended a locking problem in the modern roundabout, improved capacity, reduced crashes and created a complete change in philosophy of roundabout design and operation.
- In the mid–1970s research continued and engineers came up with another variable that introduced a revised design that recommended a curved vehicle path or deflection be added to prevent vehicles from taking too straight a path into the intersection.

The term Modern Roundabout really took root because by the year 1984 the modern roundabout came into being with three principal features:

- yield to the traffic in the circle
- deflection at entry and
- low design speed.*

**Roundabout Studies in Kansas E.R. Russell, G. Luttrell. M. Rys*

Wouldn't a traffic signal be safer than a roundabout?

Research from the Insurance Institute for Highway Safety shows far fewer crashes occur at intersections with roundabouts than at intersections with signals or stop signs. Modern roundabouts are substantially safer than intersections controlled by stop signs, traffic signals or traffic circles. The majority of U.S. roundabouts have excellent safety performance because of their small diameter (compared to traffic circles), slower circulating speeds, flared approach and deflection, and yield control entrances. Studies from around the world have shown modern roundabouts typically reduce crashes

by 40 to 60 percent compared to stop signs and traffic signals. They also typically reduce injury crashes by 35 to 80 percent and almost completely eliminate fatal and incapacitating crashes.

Considering the massive costs to society related to traffic injuries and deaths, this is an extremely important benefit associated with modern roundabouts.

Couldn't a traffic signal handle higher traffic volumes better than a roundabout?

Many people don't realize how many vehicles can be processed at a properly designed modern roundabout intersection. In most situations a modern roundabout can handle higher traffic volumes with less delay than traffic signals.

A two lane roundabout will handle 3,500 to 5,000 vehicles an hour. It would take three travel lanes and usually dual left turn lanes in each direction to match that capacity. In other words, a two–lane roundabout will handle the same capacity as other major intersections in the Valley and a three–lane roundabout will handle up to 6,000 vehicles an hour.

Wouldn't a roundabout cost more than a traffic signal?

In some situations, modern roundabouts require more right–of–way at intersections than traffic signals, resulting in higher initial costs. However, in other cases, traffic signals require numerous lanes and lengthy turn lanes (for storage) to effectively move traffic through the intersection. In these situations, traffic signals may require more total right-of-way than roundabouts. Additionally, modern roundabouts often solve traffic congestion problems without requiring road segments to be widened between intersections (known as the "wide nodes, narrow roads" philosophy) resulting in a net cost savings. Another factor worth consideration is costs associated with crashes. Because they result in far fewer injury and fatal crashes than traffic signals, modern roundabouts produce lower long–term costs to society as a result of these crashes. Also, roundabouts do not require as much maintenance as signals and only require electricity for lighting at night. These factors result in long term cost savings. Considering all of these items, modern roundabouts may cost more than traffic signals initially but are far less expensive in the long run.

Modern roundabouts might work in other locations, but can they work with our aggressive drivers?

Aggressive driving affects other motorists regardless of what kind of traffic controls are in place. Aggressive drivers are less of a safety threat when intersections are controlled by modern roundabouts than traffic signals and stop signs because (1) the potential for head-on and broadside crashes is almost completely eliminated with roundabouts and (2) speeds are lower. Modern roundabouts have been implemented with success throughout the world and U.S. Many of these locations have drivers that are aggressive, and modern roundabouts have worked well.

Modern roundabouts are confusing.

Modern roundabouts are different from traffic signals and will require drivers to learn how they operate. Experience in the U.S. has shown that motorists quickly adapt to this new type of intersection. Perhaps the best illustrations of this are Vail and Avon, Colorado, the location of numerous high capacity roundabouts. Both of these cities are major tourist destinations with many thousands of first time roundabout drivers using the roundabout intersections each year. A similar situation exists on the campus of Michigan State University where the modern roundabout at the intersection of Bogue Street and Shaw Lane sees an influx of new inexperienced drivers with each new freshman class. Despite large numbers of drivers who have not driven roundabouts previously, these intersections work well and do not confuse motorists. Additionally, proper use of the signing and striping at roundabouts assists motorists and minimizes the potential for confusion.

Will older drivers have a more difficult time negotiating modern roundabouts than traffic signals?

Two comprehensive studies of modern roundabouts in the USA have shown that the average age of drivers involved in crashes did not increase following replacement of traffic signals and stop signs with modern roundabouts. Although not conclusive, these results suggest that modern roundabouts do not pose a problem for older drivers.

Will the roundabout be unsafe for pedestrians and bicycles?

Auto-pedestrian crash rates are usually lower at modern roundabouts than traffic signals. Those pedestrian injuries that do occur tend to be less serious due to the relatively low speeds encountered at modern roundabouts. Legitimate concerns have been raised regarding the ability of blind pedestrians to negotiate roundabouts, and this topic is under consideration

within the U.S. transportation community. At intersections, which are used by blind pedestrians, other countries such as the United Kingdom have implemented design measures including signalized crosswalks with good success. Where appropriate, these measures will promote safe conditions for blind pedestrians.

Properly designed roundabouts also safely accommodate bicycles. Because vehicles are traveling at low speeds, which are comparable to bicycle speeds, bicycles can negotiate a roundabout like motorized vehicles. Bicycles have two choices to negotiate a roundabout. The more avid and skilled bicyclists can merge into a traffic lane before the bike lane ends; ride close to the middle of the lane to prevent vehicles from passing and cutting the bicyclist off; enter the roundabout after yielding to vehicles within the roundabout; circulate the roundabout being careful to watch for vehicles waiting to enter the roundabout; and exit the roundabout as a normal vehicle would do. Bicyclists not wanting to enter the roundabout can enter the sidewalk using the ramps where the bike lane ends, and proceed around the roundabout as a pedestrian.

Won't emergency vehicles be slowed down by the roundabout? Can a fire truck safely negotiate the roundabout?

A roundabout is designed to safely operate at about 20 mph. The average speed for modern roundabouts is between 15 and 25 miles an hour. The time lost negotiating the roundabout will only be a few seconds.

Roundabouts are carefully designed to accommodate emergency and large sized vehicles. Drivers should behave in the same manner as they would on any other road if an emergency vehicle approaches: Yield to Emergency Vehicles in the modern roundabout. Exit and if you can pull over.